MEMORANDUM FOR: Distribution

FROM: W/OPS1 - Mark Paese (Acting)

SUBJECT: Expansion of Console Replacement System (CRS)

1. Material Transmitted:

Engineering Handbook No. 7, Communications Equipment, Section 3.4, Modification Note 39, Errata 1, Console Replacement System Output Channel Expansion (Large 7-channel to a Large 8-channel).

2. Summary:

Request for Change AB010 authorizes CRS expansion for WFO Minneapolis, Minnesota (MPX).

3. Effect on Other Instructions:

CRS Modification Note 39, Errata 1, adds WFO MPX to the list of sites responsible for Modification Note 39.

Distribution:

W/OPS13 - M. Brown
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COMMUNICATIONS EQUIPMENT MODIFICATION NOTE 39, Errata 1
(for Electronics Technicians)
Maintenance, Logistics, and Acquisitions Division
W/OPS12:GSS

SUBJECT : Console Replacement System (CRS) Output Channel Expansion

PURPOSE : To expand the capabilities of the CRS system from a Large 7-channel to a Large 8-channel configuration.

		Site Name	SID	Org. Code
SITES AFFECTED	:	WFO Minneapolis, MN	MPX	WR9658

EQUIPMENT AFFECTED : CRS (B440)

PARTS REQUIRED: The parts required will be issued to each site by W/OPS12 from the National Logistics Support Center under the applicable approved site-specific Request for Change.

(1) DECtalk card (ASN: B440-2A2A11)
(1) Audio switch module (ASM) card (ASN: B440-2A6A3)
(1) DECtalk-ASM audio cable (ASN: B440-4W12)
(1) NOAA Weather Radio Specific Area Message Encoder (NWRSAME)-audio control panel (ACP) interface cable (ASN: B440-1A5W4)
(1) DOS formatted diskette with CRS test database ASCII files (provided by W/OPS12)

PARTS SUPPLIED BY THE SITE : The following parts shall be provided by the site:
(1) Transmitter audio output cable (prepared by the site)
(1) NWRSAME (if available)
Cable marking tags (as needed)

TOOLS AND TEST EQUIPMENT REQUIRED : #1 and #2 Phillips screwdrivers
CRS test database ASCII files diskette provided by W/OPS12 (See Parts Required)
Small flat-blade jeweler's screwdriver
Root mean square (RMS) voltmeter/dB meter
600-ohm dummy load with an RJ-11 plug attached
Anti-static work station kit
AM-48 Test Set

TIME REQUIRED : 2 hours

EFFECT ON OTHER INSTRUCTIONS: CRS Modification Note 39, Errata 1, adds WFO MPX to the list of sites responsible for Modification Note 39.

AUTHORIZATION : The authorities for this modification are Requests for Change AB010.

VERIFICATION STATEMENT : This procedure has been verified at National Weather Service Headquarters, Silver Spring, Maryland (SLVM2).

GENERAL : The attachments included in this modification provide instructions for adding output channel(s) to the CRS.

PROCEDURE : Attachment **A** provides procedures for implementing this modification
Attachment **B** (CRS Hardware Drawings) provides reference information.
Attachment **C** provides verification of the new physical configuration (used before applying power).
Attachment **D** provides a completed sample of a WS Form A-26, Maintenance Record.

REPORTING INSTRUCTIONS : Report the completed modification on a WS Form A-26 according to the instructions in Engineering Handbook No. 4 (EHB-4) Engineering Management Reporting System (EMRS), Part 2, and Appendix I. Include the following information on the A-26:

a. equipment code **CRSSA** in block 7.
b. serial number **001** in block 8.
c. the modification number **39** in block 17a.

A completed sample WS Form A-26 is provided as attachment **D**.

Mark Paese (Acting)
Chief, Maintenance, Logistics, and Acquisition Division

Attachment **A** - Modification Procedure
Attachment **B** - CRS Hardware Drawings
Attachment **C** - New Configuration Physical Verification Procedure
Attachment **D** - WS Form A-26 Sample

Attachment A

Modification Procedure

Attachment A
Modification Procedure

Overview

This modification note provides instructions for expanding a Console Replacement System (CRS) from a Large 7-channel configuration to a Large 8-channel configuration. The Modification Procedure contains seven parts:

1. CRS Power-Down Procedures
2. Equipment Upgrade Procedures
3. CRS Power-Up Procedures
4. CRS Login and Test Database ASCII File Loading Procedures
5. Post Hardware Expansion Channel Operability Verification Procedures
6. Adding New Transmitter Channels and Editing Site Database ASCII File Procedures
7. CRS Alignment Procedures

NOTE:
1. Read the entire procedure and verify receipt of all required parts before proceeding with the actual modification.
2. Coordinate with the operations staff before performing this procedure.

CAUTION

CRS must be down to perform the expansion modification. This modification contains test messages that should not be broadcast on any transmitter.

In addition, the site database ASCII file will be recompiled and all dictionary files will be lost! Switch to backup NWR system and ensure the dictionary files are backed up (see the *CRS System Administration Manual*) before performing this modification.

PART 1–CRS POWER-DOWN PROCEDURES

1.1 CRS Application Shutdown Procedure

1. Click the **System** menu and click **Stop System**.
2. Wait until all the icons on the CRS System Status menu turn **red**.

1.2 UNIX Shutdown Procedure

NOTE: The shutdown of the CRS application is just one task before the graceful power-down. After stopping the CRS application software, implement a "controlled/orderly UNIX shutdown with NO automatic reboot" on the MPs, and have a "controlled/orderly UNIX shutdown" on all FEPs. After this controlled/orderly UNIX shutdown on all processors, start powering down the MPs first and then the FEPs.

1. Click on the **Maintenance** menu in the main CRS menu menu to access the *Maintenance* pull-down menu.
2. Click on **UNIX Shell** in the *Maintenance* pull-down menu. A *UNIX xterm* window pops up for the entry of UNIX commands.
3. Type the following UNIX command in the *xterm* window:

   su root
4. Press the **Enter** key. The shell responds with a prompt to enter root passwords.
5. Type the password for the root.
6. Press the **Enter** key. The shell prompt changes to a pound sign indicating all subsequent UNIX command entries have root authority.
7. Type the following UNIX command in the *xterm* window:

   rsh 5MP /sbin/shutdown -i0 -g0 -y
8. Press the **Enter** key. The shell command prompt returns, after displaying a confirmation of shutdown initiation on 5MP. UNIX on processor 5MP shuts down.
9. Type the following UNIX command in the *xterm* window:

   rsh 1FEP /sbin/shutdown -i0 -g0 -y
10. Press the **Enter** key. The shell command prompt returns after displaying a confirmation of shutdown initiation on 1FEP. UNIX on processor 1FEP shuts down.
11. Type the following UNIX command in the *xterm* window:

    rsh 2FEP /sbin/shutdown -i0 -g0 -y
12. Press the **Enter** key. The shell command prompt returns after displaying a confirmation of shutdown initiation on 2FEP. UNIX on processor 2FEP shuts down.
13. Type the following UNIX command in the *xterm* window:

    rsh 4BKUP /sbin/shutdown -i0 -g0 -y

14. Press the **Enter** key. The shell command prompt returns after displaying a confirmation of shutdown initiation on 4BKUP. The UNIX on processor 4BKUP shuts down.

15. Type the following UNIX commands in the *xterm* window:

    a. **cd /**.

    b. Press the **Enter** key.

    c. Type **/sbin/shutdown -i0 -g0 -y**.

    d. Press the **Enter** key. Each CRS processor for the system may be safely powered-down when UNIX indicates shutdown is complete with the following message, *Press any key to reboot…*. Do not reboot any machine, go to section 1.3.

1.3 CRS Hardware Power-Down Procedure

Power down all CRS equipment at the operator's station and in the equipment room by turning off the following:

Operators Station	Equipment Room
0MP and Monitor	4BKUP
5MP and Monitor	2FEP
NWRSAME (all)	1FEP
	LAN Bridge
	LAN Server
	Monitor
	Printer
	Modem
	Audio switching assembly (ASA) power supplies

PART 2–EQUIPMENT UPGRADE PROCEDURE

NOTE: The removal and replacement of circuit cards must be accomplished in an anti-static work area using approved anti-static procedures. Refer to Appendix C and ensure all equipment cabling is properly marked before removal.

2.1 2FEP DECtalk Card Installation Procedure

1. Remove all cabling from 2FEP, and remove the FEP from the equipment rack to the anti-static work area.

2. Remove the right side covers of 2FEP using the following steps:

a. Remove the right three screws located on the back of the system unit. These screws secure the right side access panel of the system to the chassis (see attachment **B**, figure A-1).

b. Pull the panel backward and lift upward.

3. Remove and retain the screws holding the expansion slot cover 5.

4. Remove the slot 5 cover.

2.2 2FEP DECtalk Card Configuration for the Appropriate Input/Output (I/O) Address Procedure

1. Configure the new DECtalk card(s) for the appropriate I/O address through switch 2 (SW2), as defined in table 1 and pictured in attachment **B**, figure A-11.

NOTE: 1. Depending on the CRS site configuration, there may be as many as five DECtalk cards per front-end processor. In slots 2 through 6, DECtalk cards are identified as module numbers 0, 1, 2, 3, and 4.

Table 1. DECtalk Card Switch 2 (SW2) Settings

Module Number	SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW2-6	I/O Address	PC Slot
4	off	off	off	off	on	on	380	6
3	off	off	on	on	off	on	360	5
2	on	off	on	off	off	on	328	4
1	off	on	off	on	off	off	250	3
0	off	off	off	on	off	off	240	2

NOTE: 2. Regardless of FEP, DECtalk card configuration remains constant; therefore, modules 0, 1, 2, 3, and 4 are configured the same for each FEP.

2. Use table 1 to set up the new DECtalk card with the I/O address: 360
Install the DECtalk card into slot 5 of 2FEP and reinstall a retaining screw.

3. Replace 2FEP right side cover using the reverse procedure in section 2.1, step 4.

4. Replace 2FEP in the CRS main unit cabinet and reconnect all cabling with the exception of the DECtalk to ASC/ASM audio cables.